



Fact Sheets and Information Papers

Management of Discarded Nitroglycerin Patches

February 2003

1. BACKGROUND

a. In its pure form, nitroglycerin poses many hazards. Having the synonyms nitroglycerol, glyceryl trinitrate, trinitroglycerin, and explosive oil, this pale yellow, viscous liquid is extremely dangerous because of explosion and fire, and it is highly sensitive to shock and heat. It is soluble in ethanol and ether, and slightly soluble in water.

b. One method of administering nitroglycerine as a medication is by applying a patch containing formulated quantities of the chemical to a patient's skin. The transdermal system is a flat unit designed to provide continuous controlled release of nitroglycerin through intact skin. The rate of release of nitroglycerin is linearly dependent upon the area of the applied system. All of the nitroglycerin is not used in normal application, as the remainder in each system serves as a reservoir and is not delivered. Inactive ingredients can be lactose, isopropyl palmitate, mineral oil, polyethylene glycol, water, silicone rubber, plasticizers, aluminum foil laminate, polyethylene foam, and acrylic adhesive. This is only one form of several techniques to administer nitroglycerine medically. Other forms include nitroglycerin spray, ampoules, vials, tablets, capsules, ointment, injection and IV.

2. NITROGLYCERIN PATCH MANAGEMENT

a. Nitroglycerine appears on the P-list of the Resource Conservation and Recovery Act (RCRA) hazardous waste regulations, and has the Waste Code P081 [(40 CFR, Section 261.33(e)]. In light of this designation, the question arises as to whether discarded, unused nitroglycerine patches are classified as P-listed hazardous waste. The U.S. Environmental Protection Agency (EPA) did not intend for the phrase commercial chemical product to apply to manufactured articles such as these patches. In an April, 1995 policy clarification, the EPA considered discarded, unused nitroglycerine patches as manufactured articles and does not classify this item as an unused, discarded, commercial chemical product having a P-listed hazardous waste classification. The EPA refers to commercial chemical products as commercially pure grades and technical grades of the listed chemicals or chemical formulations in which the listed chemical is the sole active ingredient (54 FR 31335, 31336 July 28, 1989). Discarded, unused, nitroglycerine patches would be regulated under the EPA, RCRA, Subtitle C, if they possessed one or more "characteristics" of hazardous waste. However, these patches do not possess the Subtitle C characteristics of hazardous waste, namely ignitability, corrosivity, reactivity, or toxicity.

b. The April 1995 clarification pertains only to nitroglycerin patches. No special storage criteria exists for unserviceable patches while awaiting disposal action. There is no intention or implication to apply anything stated here to other patches containing other active ingredients, such as anti-smoking patches.

3. TURN-IN PROCEDURES.

Nitroglycerin patches may be disposed by incineration or placed in a sanitary landfill. The incinerator must be a multi-chambered incinerator with adequate pollution control devices for the removal of nitrogen oxides. The sanitary landfill shall be constructed, and operated in accordance with title 40, Code of Federal Regulations (CFR), latest edition, part 257, Criteria for Classification of Solid Waste Disposal Facilities and Practices.

All applicable state or local regulations must also be recognized and applied.

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